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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,378	01/15/2002	Chienchung Chang	PA020077	6174

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Qualcomm Incorporated  
Patents Department  
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EXAMINER

HARPER, V PAUL

ART UNIT PAPER NUMBER

2654

DATE MAILED: 01/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/050,378

Applicant(s)

CHANG ET AL.

Examiner

V. Paul Harper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____  | 6) <input type="checkbox"/> Other: ____                                     |

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --Interactive Speech Recognition Apparatus with Conditioned Voice Prompts--.

2. The disclosure is objected to because the term "voice recognition" is used for what nowadays is called—**speech recognition**—in the speech signal processing art. While "**voice** recognition" and "speech recognition" were once used interchangeably, these days the terms must be strictly distinguished. For, the term "voice recognition" now denotes identification of who is doing the speaking, while "**speech** recognition" (or "**word** recognition") denotes identification of what is being said. So, appropriate correction to the proper terms of art is required.

### *Claim Objections*

3. Claims 1, 4, 6, 7, 10, 13, 15, 16, 19 and 20 are objected to because the phrase "voice recognition" should be replaced by –speech recognition—( see ¶2, above).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnston (International Publication Number WO 98/24225), hereinafter referred to as Johnston.

Regarding **claim 1**, Johnston discloses an interactive voice response apparatus capable of distinguishing between a user's incoming voice and outgoing conditioned voice prompts (title). Johnston's apparatus includes the following:

- a voice prompt generator configured for generating voice prompt in a first frequency band (p. 6, lines 10-15; p. 3, lines 3-12; a preconditioned [filtered] recorded speech signal, where the lacking frequency component comprises one or more portions of the frequency spectrum);
- a speech detector configured for detecting presence of speech energy in a second frequency band, wherein said first and second frequency bands are essentially conjugate frequency bands (p. 6, line 31 through p. 7, line 9; Fig. 1, **INPUT SIGNAL ANALYZER**, item 21; if the signal in the passband exceeds a threshold then a signal [USER Y/N] is generated indicating the presence of a user's voice, where the passband includes the range of frequencies filtered out of the voice prompts [i.e., conjugate, see Figs. 4A, 4B, and 4C]).

Regarding **claim 2**, Johnston teaches everything claimed, as applied above (see claim 1); in addition, Johnston teaches the use of “a voice data generator for generating voice data based on an output of said voice prompt generator and audible speech of a voice response generator” (p. 6, lines 10-27; Fig. 1, item 28; the message generator outputs the messages and responses to the user, see Fig. 2).

Regarding **claim 3**, Johnston teaches everything claimed, as applied above (see claim 1); in addition, Johnston teaches the use of “a control signal for controlling said voice prompt generator based on whether said speech detector detects presence of speech energy in said second frequency band” (p. 7, line 1-14; Fig. 1, items 23 [USER Y/N], 30, and 28; p. 2, lines 24-26; as soon as the user’s response is detected the outputted voice signals [prompts] are stopped).

Regarding **claim 4**, Johnston teaches everything claimed, as applied above (see claim 1); in addition, Johnston teaches the use of “a back end of said interactive voice recognition system configured to operate on an extracted front end voice feature based on whether said speech detector detects presence of speech energy in said second frequency band” (p. 7, lines 10-14; when the signal indicating a user’s voice is present the speech recognizer attempts to recognize the current word being spoken, Fig. 1, **SPEECH RECOGNIZER**).

Regarding **claim 5**, Johnston teaches everything claimed, as applied above (see claim 1); in addition, Johnston teaches "said first and second frequency bands include a plurality of conjugate frequency bands" (p. 3, lines 10-12; the lacking component comprises one or more portions of the frequency spectrum; see Figs. 4A-C for illustration of conjugate frequency bands).

Regarding **claim 6**, Johnston discloses an interactive voice response apparatus and method capable of distinguishing between a user's incoming voice and outgoing conditioned voice prompts (title). Johnston's method includes the following steps:

- filtering output of a voice prompt generator in accordance with a first frequency band (p.6, lines 10-27, Fig. 1, items 26 and 27; p. 3, lines 3-12; a preconditioned [filtered] recorded speech signal, where the lacking frequency component comprises one or more portions of the frequency spectrum);
- controlling said output of said voice prompt generator based on detection of a presence of speech energy in a second frequency band, wherein said first and second frequency bands are essentially conjugate frequency bands (p. 6, line 31 through p. 7, line 9; Fig. 1, INPUT SIGNAL ANALYZER, item 21; if the signal in the passband exceeds a threshold then a signal [USER Y/N] is generated indicating the presence of a user's voice, where the passband includes the range of frequencies filtered out of the voice prompts [i.e., conjugate, see Figs. 4A, 4B, and 4C]). .

Regarding **claim 7**, Johnston teaches everything claimed, as applied above (see claim 6); in addition, Johnston teaches “operating a back end of said interactive voice recognition system based on said detection of said presence of speech energy in said second frequency band” (p. 7, lines 10-14; when the signal indicating a user’s voice is present the speech recognizer attempts to recognize the current word being spoken, Fig. 1, **SPEECH RECOGNIZER**).

Regarding **claim 8**, Johnston teaches everything claimed, as applied above (see claim 6). In addition, Johnston teaches “generating voice data based on an output of said voice prompt generator and audible speech of a voice response generator” (p. 7, lines 10-25; Fig. 2, illustrates a dialog with prompts [output of voice prompt generator ...] and responses [voice data], “ wherein said detection of said presence of speech energy in said second frequency band is based on processing of said voice data” (p. 7, lines 1-9; the signal analyzer detects speech [voice data] and generates a “user present” signal).

Regarding **claim 9**, Johnston teaches everything claimed, as applied above (see claim 6); in addition, Johnston teaches “said first and second frequency bands include a plurality of conjugate frequency bands” (p. 3, lines 10-12; the lacking component comprises one or more portions of the frequency spectrum; see Figs. 4A-C for conjugate frequency bands).

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Regarding **claim 10**, this claim has limitations similar to claim 1 and is rejected for the same reasons.

Regarding **claim 11**, this claim has limitations similar to claim 2 and is rejected for the same reasons.

Regarding **claim 12**, this claim has limitations similar to claim 3 and is rejected for the same reasons.

Regarding **claim 13**, this claim has limitations similar to claim 4 and is rejected for the same reasons.

Regarding **claim 14**, this claim has limitations similar to claim 5 and is rejected for the same reasons.

Regarding **claim 15**, this claim has limitations similar to claim 6 and is rejected for the same reasons.

Regarding **claim 16**, this claim has limitations similar to claim 7 and is rejected for the same reasons.



Regarding **claim 17**, this claim has limitations similar to claim 8 and is rejected for the same reasons.

Regarding **claim 18**, this claim has limitations similar to claim 9 and is rejected for the same reasons.

Regarding **claim 19**, Johnston discloses an interactive voice response apparatus capable of distinguishing between a user's incoming voice and outgoing conditioned voice prompts (title). Johnston's apparatus includes the following:

- a voice prompt generator configured for generating voice prompt in a first frequency band (p. 6, lines 10-15; p. 3, lines 3-12; a preconditioned [filtered] recorded speech signal, where the lacking frequency component comprises one or more portions of the frequency spectrum);
- a speech detector configured for detecting presence of speech energy in a second frequency band, wherein said first and second frequency bands are essentially conjugate frequency bands (p. 6, line 31 through p. 7, line 9; Fig. 1, **INPUT SIGNAL ANALYZER**, item 21; if the signal in the passband exceeds a threshold the a signal is generated indicating the user's voice, where the passband includes the range of frequencies filtered out of the voice prompts [i.e., conjugate, see Figs. 4A, 4B, and 4C]);
- a voice data generator for generating voice data based on an output of said voice prompt generator and audible speech of a voice response generator (p. 6, lines 10-27;

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Fig. 1, item 28; the message generator outputs the messages and responses to the user, see Fig. 2);

- a control signal for controlling said voice prompt generator based on whether said speech detector detects presence of speech energy in said second frequency band (p. 7, line 1-14; Fig. 1, items 23 [USER Y/N], 30, and 28; p. 2, lines 24-26; as soon as the user's response is detected the outputted voice signals [prompts] are stopped).

Regarding **claim 20**, this claim has limitations similar to claim 4 and is rejected for the same reasons.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston in view of Weerackody et al. (U.S. Patent 6,760,699), hereinafter referred to as Weerackody.

Regarding **claim 21**, Johnston teaches everything claimed, as applied above (see claim 19). In addition, Johnston teaches the following:

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- an extracted front end voice feature, based on whether said speech detector detects presence of speech energy in said second frequency band (p. 7, lines 10-14; if user speech is detected speech recognition is attempted; Fig. 1, items 21, 23, and 22);
- to a back end of an interactive voice recognition system configured to operate on said extracted front end voice feature ( Fig. 1, **SPEECH RECOGNIZER**).

But Johnston does not specifically teach the “means for providing a wireless communication link to a base station to communicate” to a back end. However, the examiner contends that this concept was well known in the art, as taught by Weerackody.

In the same field of endeavor, Weerackody discloses a distributed wireless recognition system for use over wireless channels (title). Weerackody teaches the extraction for speech features in a wireless device (Fig. 1, item 11; col. 4, lines 12-21, lines 46-50) and the [back end] recognition of the speech in a base station (Fig. 1, item 19; col. 5, lines 5-10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Johnston by specifically providing the features, as taught by Weerackody, because it is well known in the art at the time of invention that the computational complexity of performing speech recognition in a wireless device can be prohibitive (col. 1, lines 50-55).

***Citation of Pertinent Art***

6. The following prior art made of record but not relied upon is considered pertinent to the applicant's disclosure:

- Johnson et al. (U.S. Patent 5,155,760) discloses a voice messaging system with voice activated prompt interrupt.
- Nguyen (U.S. Patent 6,061,651) discloses an apparatus that detects voice energy during prompting by a voice recognition system.
- Schalk et al. (U.S. Patent 5,475,791) discloses a method for recognizing a spoken word in the presence of interfering speech.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is 703 305-4197. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 703 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

V. Paul Harper  
Examiner  
Art Unit 2654

01/12/2005

A handwritten signature in black ink that reads "V. Paul Harper". The signature is written in a cursive style with a large, stylized "V" and "H".